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India's Number 1 Education App

PHYSICS

BOOKS - ICSE

ICSE ANNUAL EXAMINATION -2020

Section I

1. The figure below shows the parts of measuring scales. Which scale can measure

length more accurately A or B:

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2. Name a physical quantity related to the unit light year

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3. What is the relation between time period (T) and frequency (f) of an oscillation of a simple pendulum?

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4. What will be the effect on the time period of the pendulum if the mass of the bob is increased for the same length?

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5. Classify the following physical quantities as scalar or vector quantities. Pressure, Acceleration, Speed and Force.

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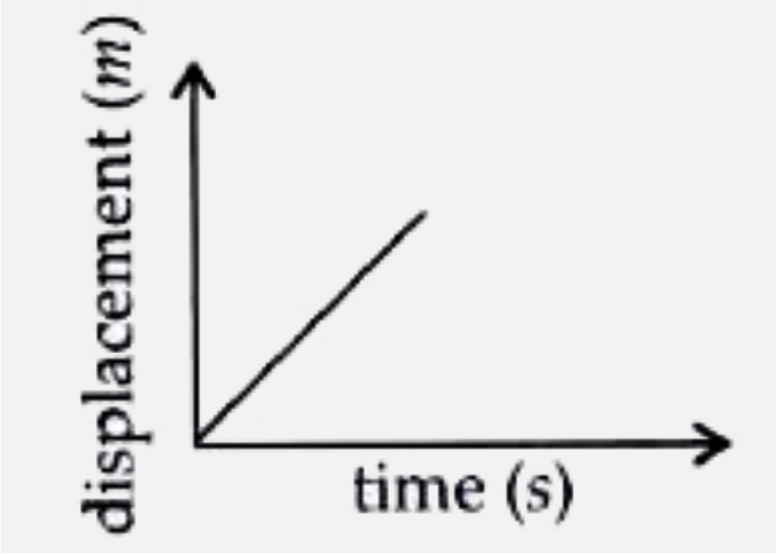
6. The motion of a body is represented by the following displacement-time graph.



State the type of motion represented in the graph.

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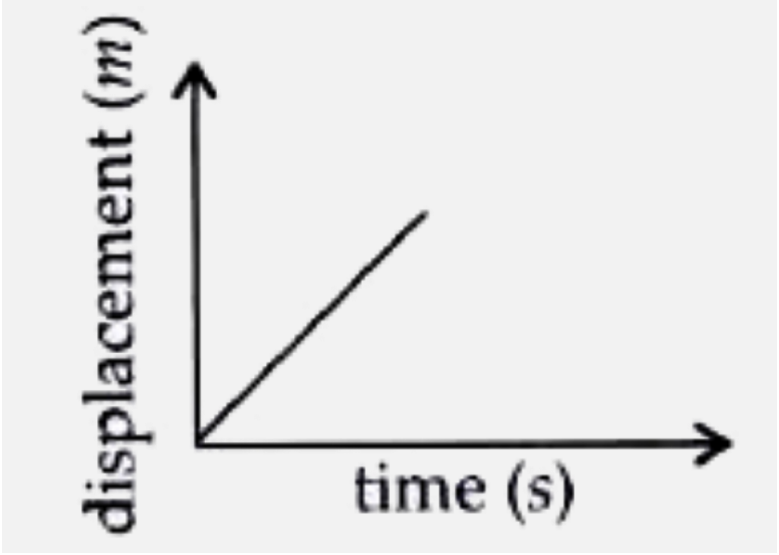
7. The motion of a body is represented by the following displacement-time graph.



How can the velocity of the body be determined from the above graph?

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8. A car starting from rest acquires a velocity of $54 \mathrm{kmh}^{-1}$ min 20 s.

Calculate the acceleration of the car in S.I. unit.

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9. A car in motion is brought to rest by applying brakes.

Name the contact force responsible in bringing the car to rest.

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10. A car in motion is brought to rest by applying brakes.

What is the direction of the above identified force with respect to the motion of the car?

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11. Name the property of an object by virtue of which it opposes or tends to oppose any change in its state.

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12. What is the factor on which this property of an object depends?

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13. The gravitational force of attraction between two bodies at a distance X is 20 N. What will be the force of attraction between them if the distance between them is made 2X?

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14. What do you understand by the term relative density of a substance?

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15. If the relative density (R.D.) of a substance is 1.2, state its density in the S.I. system, if density of water at $4^{\circ} C$ is $1000 \mathrm{kg} \mathrm{m}^{-3}$.

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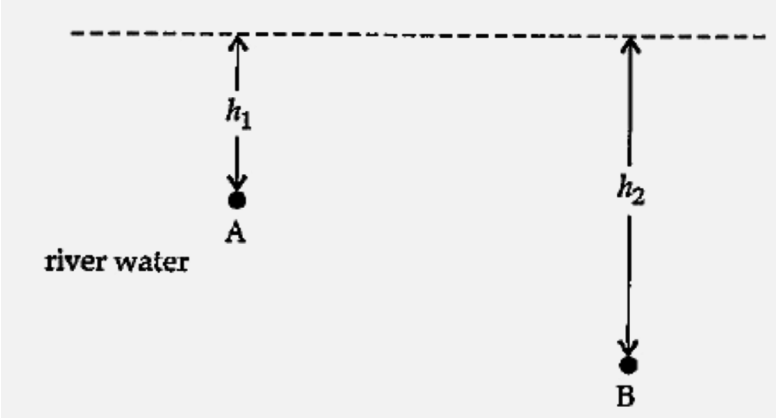
16. The diagram below shows the position of two divers A and B in river water at the depth of h_1 and h_2 respectively from the water surface.



Which of the two divers (A or B) will experience more pressure by the water?

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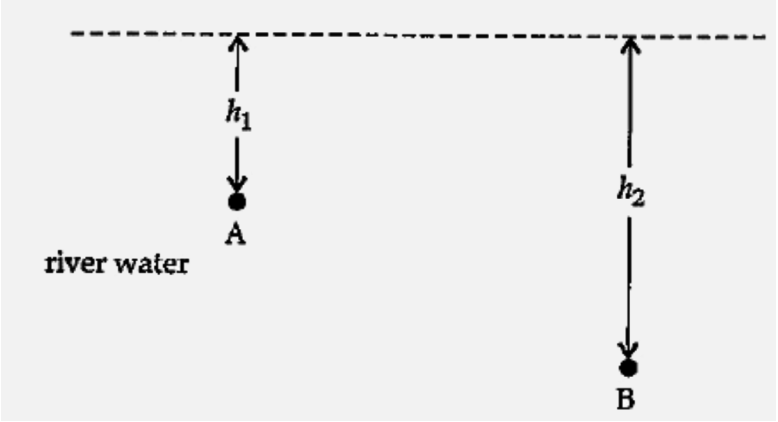
17. The diagram below shows the position of two divers A and B in river water at the depth of h_1 and h_2 respectively from the water surface.



The two divers were later made to dive in a sea. For the same depth, they experience more pressure in the sea compared to that in the river. Why?

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18. A body weighs 550 gf in air and 370 gf in water when it is completely immersed in water. Find the upthrust on the body.

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19. A body weighs 550 gf in air and 370 gf in water when it is completely immersed in water. Find the volume of the body. (density of water = 1 g cm^{-3})

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20. State one advantage of using renewable source of energy

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21. According to the law of thermodynamics, "No energy transfer is 100% efficient." Why?

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22. When two bodies and are kept in contact, it is found that heat gets transferred from Q to P.

Which of the two (Por Q) is hotter?

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23. When two bodies and are kept in contact, it is found that heat gets transferred from Q to P.

Which physical quantity determines the direction of transfer of heat energy?

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24. A plane mirror is used to obtain an image of an object.

Compare the size of the image formed in it to the size of the object.

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25. A plane mirror is used to obtain an image of an object.

State the nature of the image formed in the plane mirror.

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26. Why is a convex mirror preferred as a reflector in a street lamp?

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27. A concave mirror is used as a reflector in torches, head lights of automobiles etc, to

obtain a parallel beam of light. State the position of the source of light on the principal axis to obtain the parallel beam.

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28. The frequency of sound produced by a vibrating body in air is 15,000 Hz. Will the sound be audible to humans?

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29. Name the vibrations used in SONAR.

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30. The flash of an exploding cracker is seen even before we hear the sound. Why?

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31. In which state of matter does sound travel the fastest?

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32. What is the amount of work done in moving a charge of 15 between two points kept at a potentia difference of 1.2 V?

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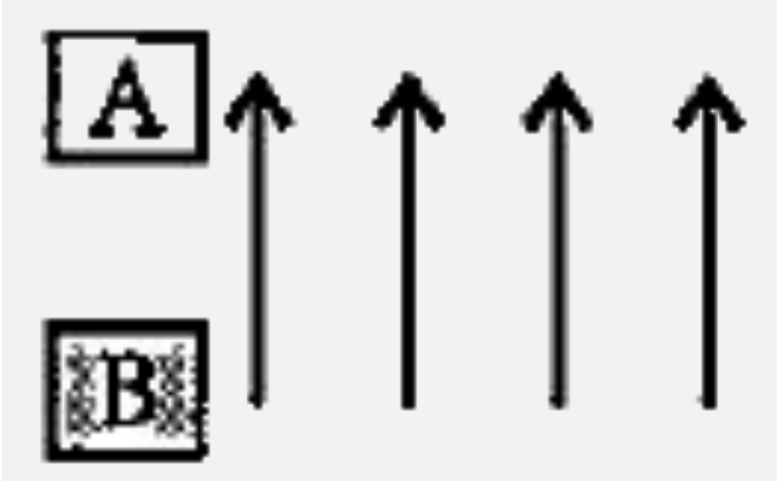
33. The diagram below shows the magnetic field lines of earth in a limited space. The field lines are parallel and equidistant.



Are the magnetic field lines uniform or non-uniform?

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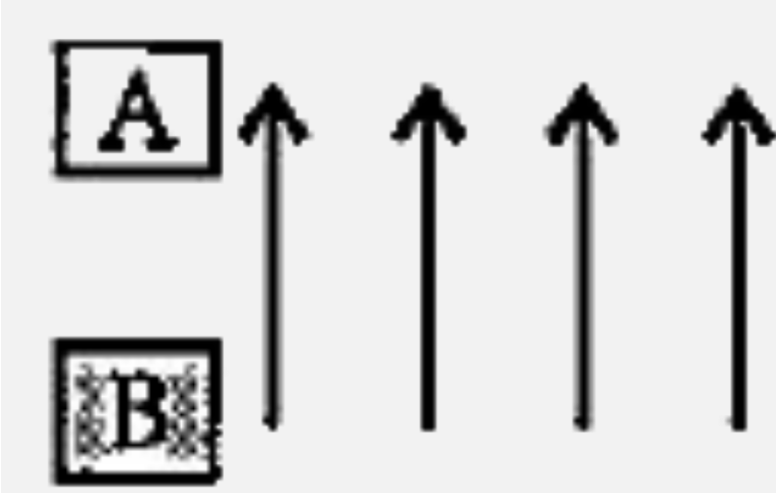
34. The diagram below shows the magnetic field lines of earth in a limited space. The field lines are parallel and equidistant.



Where is the position of the geographic north,

A or B?

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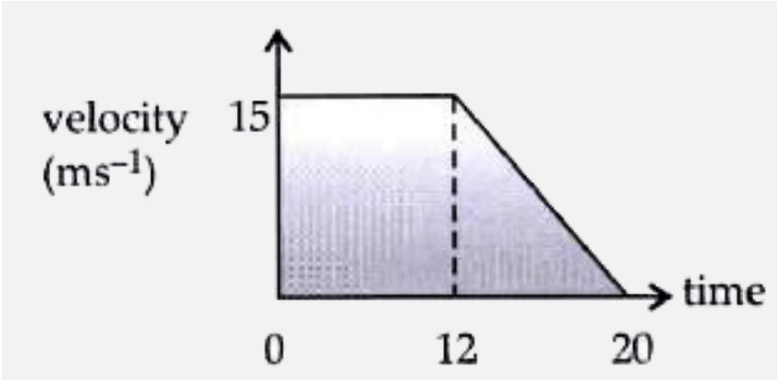
Section Ii

1. The figure below shows the velocity-time graph of a body moving in a straight line.



Find the time interval in which the body is moving with zero acceleration

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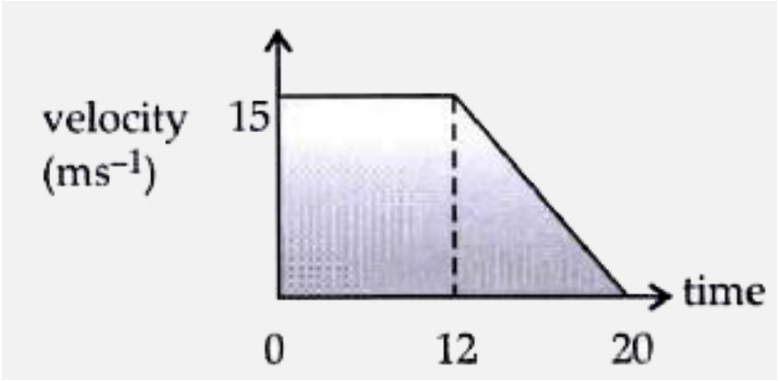
2. The figure below shows the velocity-time graph of a body moving in a straight line.



Find the total displacement of the body.

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3. The SI unit of length is represented by the Symbol .m..

What is the symbol for SI unit of current?

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4. When is a vernier callipers said to be free from zero error?

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5. Name the principle on which screw gauge works.

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6. Draw a graph (not to the scale) representing the variation of square of time period (T^2) with the length (l) of a pendulum.

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7. If the length of a simple pendulum is increased to four times the initial length how is the time period affected?

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8. A car travels from A to B and returns to its original position.

The distance between A and B is 2000 m.

Find the total displacement of the car.

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9. A car travels from A to B and returns to its original position.

The distance between A and B is 2000 m.

The car takes 5 min to travel from A to B but

takes 8 min to travel back from B to A. Is the speed of the car greater while going from A to B or while travelling back from B to A?

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10. A car travels from A to B and returns to its original position.

The distance between A and B is 2000 m.

When can the magnitude of distance and displacement be equal for a body in motion?

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11. A book is kept on the table as shown in the diagram. Copy the diagram and mark the action reaction forces with their directions.

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12. Action and reaction act on the :

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13. State Newton.s second law of motion.

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14. Find the force exerted on a mass of 20 g if the acceleration produced in it is $8\mathrm{m\ s^{-2}}$

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15. The change in momentum of a body is represented by $\Delta p = m\Delta v$.

When is this expression valid for the change in the linear momentum?

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16. Name and state the principle on which a hydraulic press works. Write one use of the hydraulic press.

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17. The pressure exerted on the smaller and the larger piston of a hydraulic machine is 15 Pa Calculate the force exerted by it on the larger piston, if the area of cross section of the larger piston is $4m^2$.

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18. An altimeter is an aneroid barometer which makes use of the change in atmospheric pressure with the change in height above the

sea level (altitude).

How does the atmospheric pressure change with increase in height above the sea level?

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19. An altimeter is an aneroid barometer which makes use of the change in atmospheric pressure with the change in height above the sea level (altitude).

How does the atmospheric pressure change with increase in height above the sea level?

Watch Video Solution

20. An altimeter is an aneroid barometer which makes use of the change in atmospheric pressure with the change in height above the sea level (altitude).

What is the approximate value of atmospheric pressure at sea level in S.I unit?

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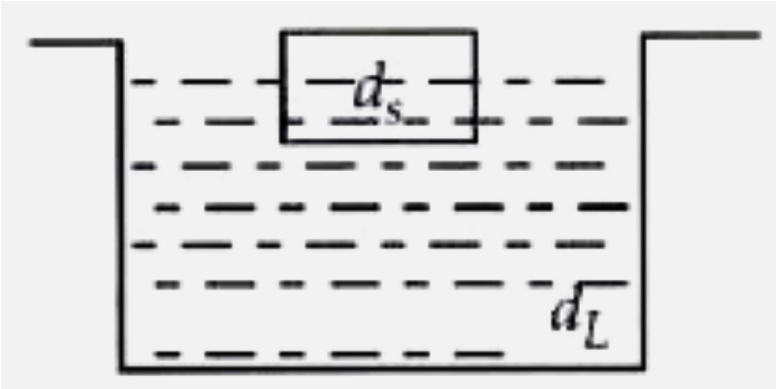
21. 

The figure above shows a solid of density d_S floating in a liquid of density d_L.

What is the relation between d_S and d_L in the above case?

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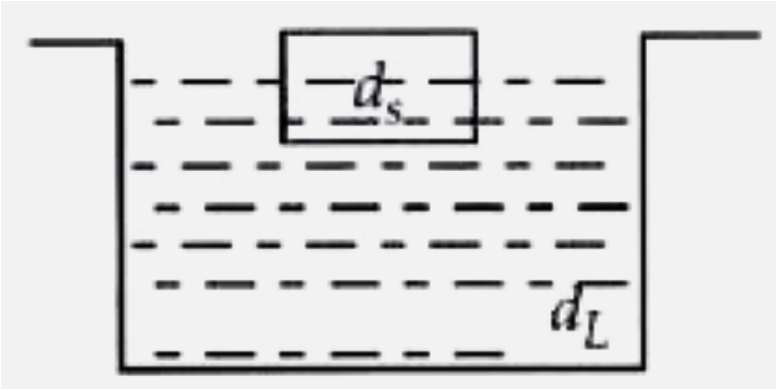
22. 

The figure above shows a solid of density d_S floating in a liquid of density d_L.

What is the apparent weight of the floating body?

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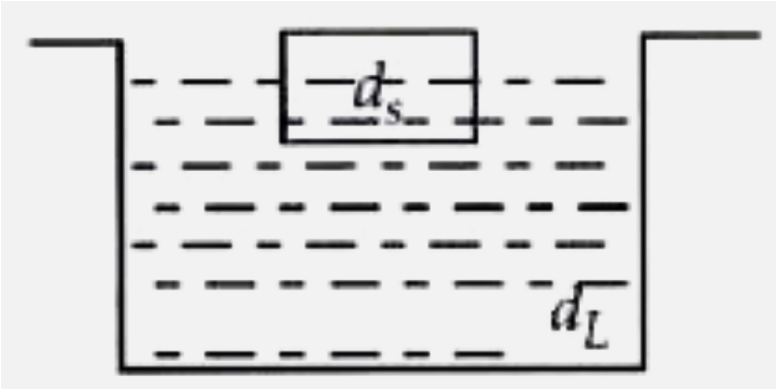
23. 

The figure above shows a solid of density d_S floating in a liquid of density d_L.

The same solid floats in water with $\frac{3^{th}}{5}$ of its volume immersed in it. Calculate the density of the solid. (density of water = 1 g cm^{-3})

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24. What is the main source of energy for earth ?

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25. Though tidal energy is a clean source of energy, it is not a major source of energy. Why?

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26. What is the energy transformation in a solar cell?

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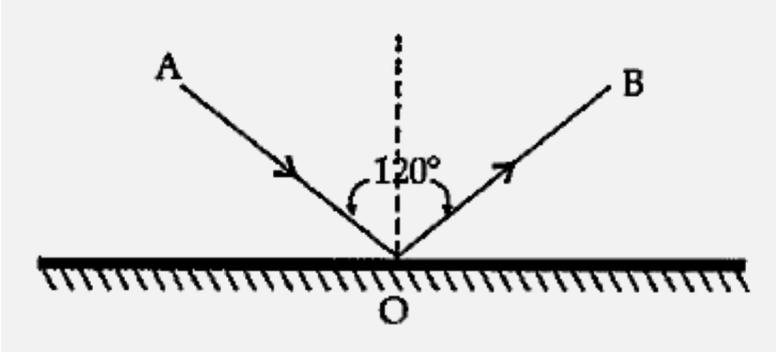
27. The diagram below shows a light ray striking and reflecting from a plane mirror AO is the incident ray and OB the reflected ray. The angle between the incident ray and the reflected ray is 120°.



What is the value of the angle of reflection?

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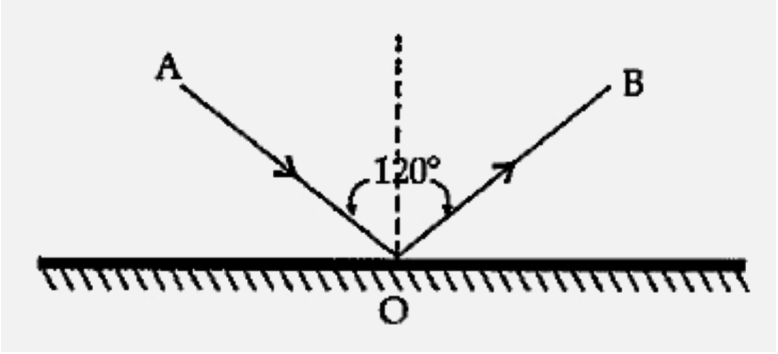
28. The diagram below shows a light ray striking and reflecting from a plane mirror AO is the incident ray and OB the reflected ray. The angle between the incident ray and the reflected ray is 120°.



If the image of an object is formed 5 cm behind the mirror, what is the distance between the image and the object?

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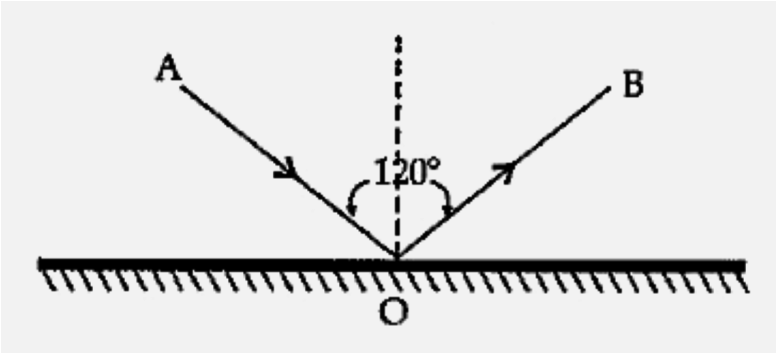
29. The diagram below shows a light ray striking and reflecting from a plane mirror AO is the incident ray and OB the reflected ray.

The angle between the incident ray and the reflected ray is 120°.



If two plane mirrors are used and kept facing parallel to each other, how many images are formed if the object is kept in between them?

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30. An object is placed at 6 cm distance in front of a concave mirror of focal length 4 cm. Find the position of the image period.

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31. An object is placed at 6 cm distance in front of a concave mirror of focal length 4 cm. What will be the nature of the image?

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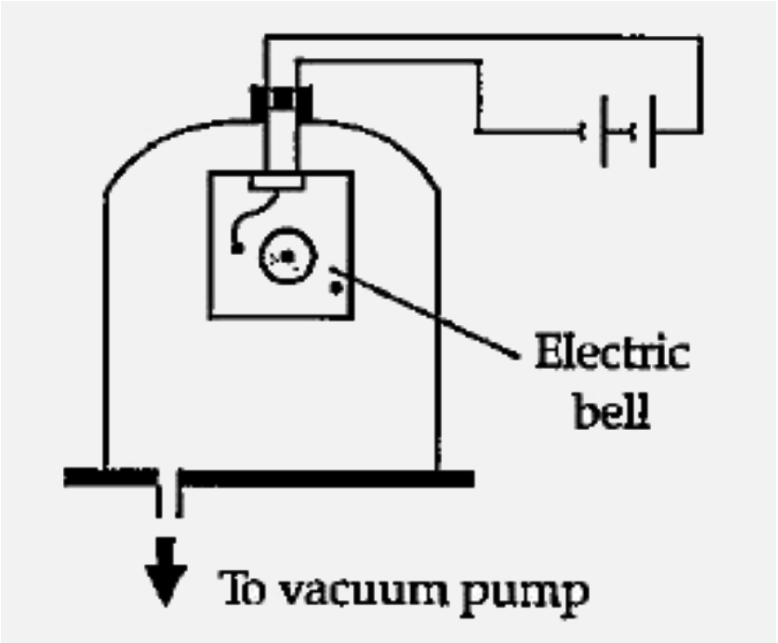
32. The figure shows a glass container filled with air and having an electric bell kept inside it. A person standing close to it can distinctly hear the bell. Now the air inside is removed slowly.



Will the person be able to hear the bell after

the air in the container is completely removed? Why?

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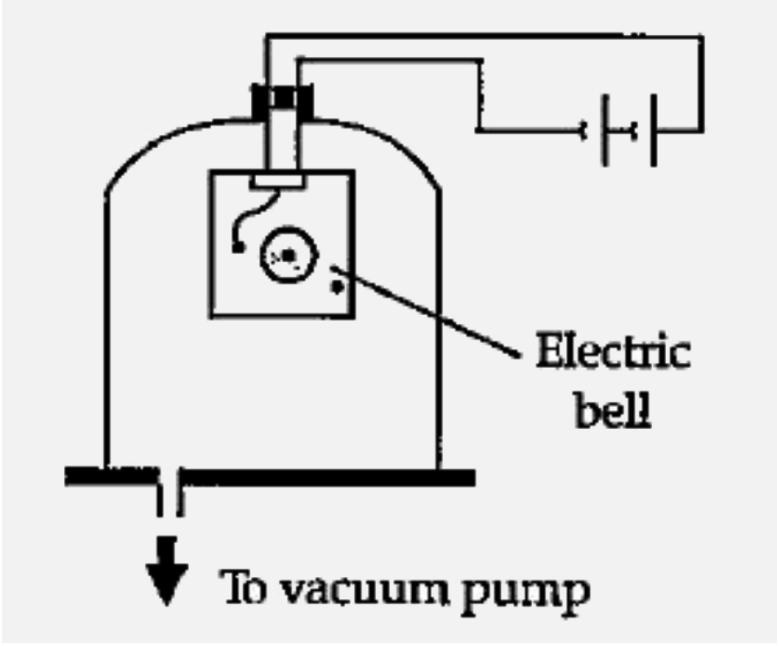
33. The figure shows a glass container filled with air and having an electric bell kept inside it. A person standing close to it can distinctly hear the bell. Now the air inside is removed slowly.



How does the speed of sound get affected when there is an increase of moisture in the air?

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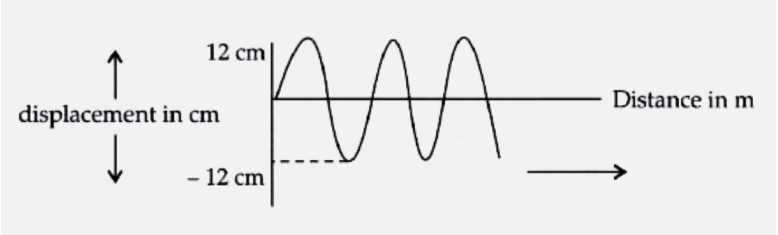
34. The figure shows the snapshot of a sound wave in a certain medium at a certain instant.



What is the amplitude of the wave?

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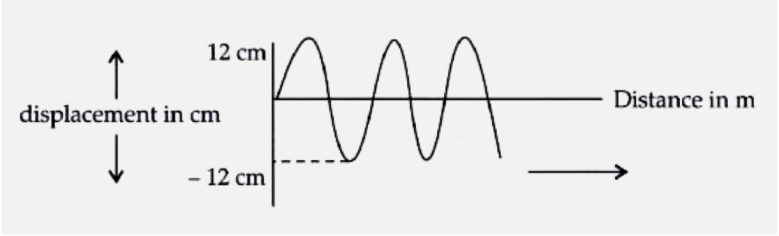
35. The figure shows the snapshot of a sound wave in a certain medium at a certain instant.



If the velocity of the wave is $4\mathrm{ms}^{-1}$, calculate the wavelength of the wave if its frequency is 20 Hz.

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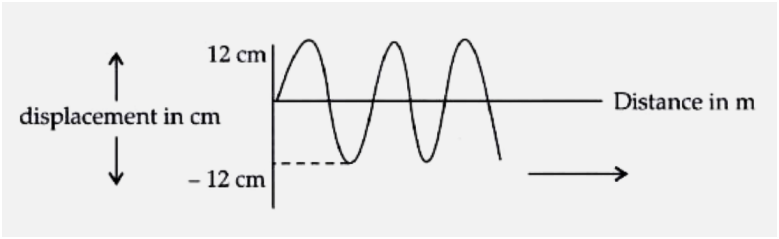
36. The figure shows the snapshot of a sound wave in a certain medium at a certain instant.



If a wave of same type but with higher frequency is passed in the given medium, will the speed of the wave increase, decrease or remain the same?

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37. State any two properties of magnetic field lines.

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38. Give any one evidence which points towards the existance of the Earth.s magnetic field .

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39. A soft iron when brought close to a magnet is attracted towards it. Name the phenomenon.

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40. An iron piece is converted into a magnet by passing current through a wire wound around it. Name the magnet.

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41. State any one use of the magnet.

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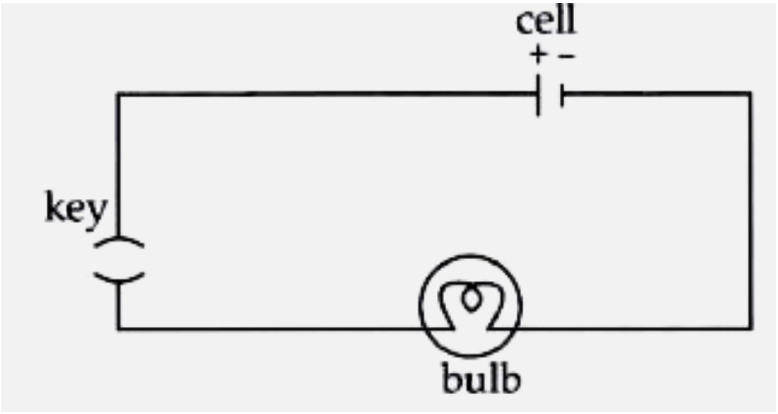
42. The diagram shows a circuit in which a bulb is connected through connecting the wires to a cell.



The bulb in the circuit does not glow. Why?

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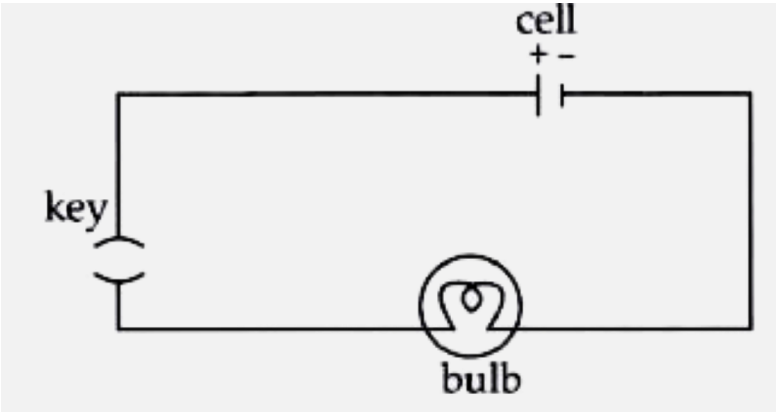
43. The diagram shows a circuit in which a bulb is connected through connecting the wires to a cell.



If the bulb is glowing then what will be the direction of the conventional current in the circuit?

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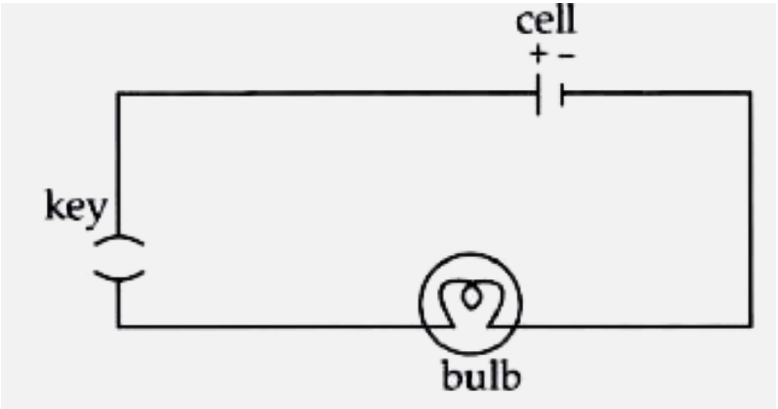
44. The diagram shows a circuit in which a bulb is connected through connecting the wires to a cell.



Name an instrument used to control the electric current in the circuit.

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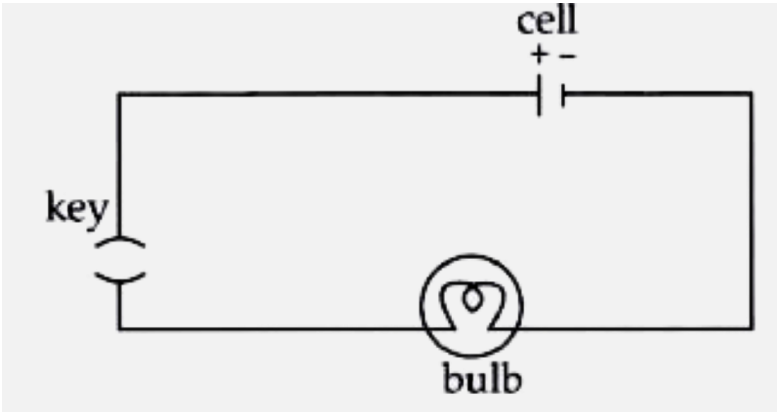
45. The diagram shows a circuit in which a bulb is connected through connecting the wires to a cell.



What do you understand by the term current?

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